attribute name in the old document needs to be replaced with the corresponding new attribute name.

[0060] As for the addition, deletion or modification of other elements included in the data model, e.g., the aggregation, composition, generalization, etc. of UML, similar processing is performed.

[0061] FIG. 7 shows an exemplary operation process that the apparatus 200 according to another embodiment of the present invention provides inter-version document compatibility, wherein the apparatus 200 is at a network server and provides inter-version conversion of documents as a networked service. The operation process includes the following steps.

[0062] In step 1 a user, User 2, sends a document M_3 of version 3.0 to a model transformation service (MTS for short) provided by the apparatus 200 of the present invention, and informs the MTS of the application version 1.0 of another user, User 1.

[0063] In step 2, the MTS automatically generates an ID of the document based on the account of User 2, the document title and the time.

[0064] In step 3, the MTS automatically converts the document M_3 into a document M_1 conforming to the application version 1.0 of the User 1 (possibly through conversion to one or more intermediate versions, as well as merging and verification operations), and sends a link to the converted document M_3 to User 2 as a feedback, and the link includes the ID of the document.

[0065] In step 4, User 2 sends the link including the document ID to User 1 through a network.

[0066] In step 5, User 1 uses the link to download the converted document M_1 from the MTS, and modifies the document M_1 to obtain a document M_1'.

[0067] In step 6, User 1 uploads the modified document M_1' and the document ID to the MTS.

[0068] In step 7, the MTS automatically converts the document M_1' into a modified document M_3' of version 3.0 (possibly through conversion to one or more intermediate versions, and merging and verification operations), and provides another link to the document M_3' to User1.

[0069] In step 8, User 1 notifies the link to User2 via the network.

[0070] In step 9, User 2 downloads the modified document M_3' using the link.

[0071] In accordance with another embodiment of the present invention, the conversion module 202 for converting documents of different versions of the application by using the conversion stack 201 is further configured for: receiving a document of a lower version from an application of the lower version; successively converting the document of the lower version into zero, one or more documents of intermediate versions between a higher version and the lower version and a document of the higher version by using one or more differentiation models between data models between the higher version and the lower version in the conversion stack 201, and storing the document of the lower version, and the zero, one or more documents of intermediate versions between the higher version and the lower version or the relevant information therein; providing the document of the higher version to an application of the higher version, so as to perform required modifications to the document of the higher version by the application of the higher version; successively converting the modified document of the higher version into zero, one or more modified documents of intermediate versions, and a

modified documents of the lower version, by using the one or more differentiation models between the data models between the higher version and the lower version in the conversion stack 201 and by merging successively with the zero, one or more stored documents of intermediate versions between the higher version and the lower version and the document of the lower version or the relevant information therein through the merging model 204; and sending the modified document of the lower version to the application of the lower version; wherein the apparatus 200 further includes the merging module 204 for: successively merging zero, one or more incomplete documents of intermediate versions and an incomplete document of the lower version successively converted from the modified document of the higher version with the zero, one or more stored documents of intermediate versions between the higher version and the lower version and the document of the lower version or the relevant information therein, to generate the zero, one or more modified documents of intermediate versions, and the modified document of the lower version.

[0072] Thus, in an application scenario of this embodiment, different from the application scenario of the embodiment shown in FIG. 6 where the converting processing is performed on a document of a higher version in an application of higher version, and then the converted document is sent to an application of a lower version so as to be modified and returned by the application of lower version, and is converted again in the application of the higher version to generate a modified document of the higher version, it is that an application of the lower version sends a document of the lower version to an application of higher version and is converted by the application of the higher version, and after being modified by the application of the higher version, is converted again to generate a modified document of the lower version, and sent to the application of the lower version.

[0073] Although, in the exemplary scenario shown in FIG. 6, the user using the application of a higher version converts a document of the higher version into a document of a lower version by the apparatus 200 of the present invention and sends it to the user using the application of the lower version for modification, and then receives a modified document of the lower version from the application of the lower version, and converts the modified document of the lower version into a modified document of the higher version, the apparatus 200 according to an embodiment of the present invention is also suitable for another scenario, wherein a user using an application of a lower version sends a document of the lower version to a user using an application of a higher version, and the user using the application of the higher version modifies the document of the lower version after converting it into a document of the higher version by the apparatus 200 of the present invention, and converts the modified document of the higher version into a modified document of the lower version and sends it to the user using the application the lower version of.

[0074] Similarly, although in the exemplary scenario show in FIG. 7, the user using the application of a higher version sends a document of the higher version to the apparatus 200 of the present invention at the network server, and the apparatus 200 of the present invention converts it into a document of a lower version and provides it to the user using the application of a lower version for modification, who then sends the modified document of the lower version to the apparatus 200 of the present invention, and the apparatus 200 of the present inven-